

MOVE ON WITH EXPECTATIONS AND CHALLENGES: REPORT FOR A TRANSPORTATION NEEDS
ASSESSMENT OF LATINO IMMIGRANTS IN LEE COUNTY, NORTH CAROLINA

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This paper represents work done by a UNC-Chapel Hill Master of City and Regional Planning student. It is not a formal report of the Department of City and Regional Planning, nor is it the work of the department's faculty.

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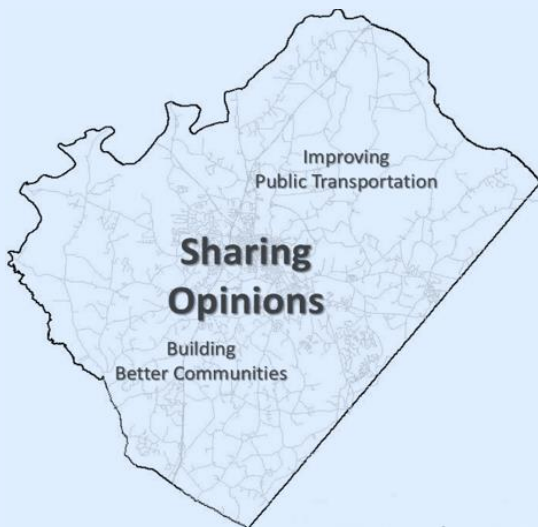
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**A Master Project Report
Submitted to:
Department of City and
Regional Planning
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Move on with Expectations and Challenges: Report for A Transportation Needs Assessment of Latino Immigrants in Lee County, North Carolina



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

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ABSTRACT

Latino immigrants in Lee County need reliable, affordable and convenient transportation options to make mandatory and maintenance trips. Public transportation could enable people to have better management of their own time, to feel independent and to travel with less stress, but the current mismatch in operating hour and service mode diminishes the usefulness of the local transit system to Latino immigrants. The local government is facing challenges in meeting the various transportation needs to sustain a life in a rural county with limited funding. The study suggests that the local transit system use the available resources more efficiently to match the unmet needs with the current service capacity of the transit system.



1. INTRODUCTION

Transportation is key to moving rural residents to employment and other services (Stommes and Brown 2005), and enables individuals to live independently (Godavarthy et al. 2014). Access to employment is often limited for individuals without cars who live in areas without public transit. Rural areas, in particular, present additional transportation challenges (Stommes and Brown 2005). For many living in rural area without cars, there may be no feasible alternative modes, and the costs of the resulted foregone trips can be substantial (Godavarthy et al. 2014). Immigrants, especially those newly arrived in the United States, are more likely to live without cars and thus depend on alternative transportation. Lack of transportation options can be a critical issues for immigrants living in rural area.

This document presents the findings of a transportation needs assessment of Latino immigrants in Lee County, North Carolina. Lee County is a rural county located in middle North Carolina. The study aims to answer how Latino immigrants in Lee County are getting around, to assess the transportation needs of Latino immigrants in Lee County, and to understand their expectations for public transportation. The study also recognizes the opportunities and challenges for a local government in meeting the transportation needs in rural area and provides reasonable recommendations on how the local transit system can better serve the Latino population there. The document should serve as a communication tool among agencies and organizations that are working on improving public transportation or developing better Latino communities in Lee County, North Carolina.

Section 2 provides a literature review on travel behavior of immigrants, benefits of rural transit services and challenges for rural transit organizations in the United States.

Section 3 provides demographic information of Lee County with focus on Hispanic or Latino population and a description of the local transit system of Lee County, COLTS, regarding its administration, marketing, operation and funding.

Section 4 describes the study methodology and Section 5 presents findings from the interviews for the study.

Section 6 presents the discussions of the interview findings by comparing the Latino immigrants' perspective and COLTS's perspective and Section 7 provides recommendations on how COLTS can better serve the Latino population in Lee County.

Section 8 gives a conclusion to the whole report that summarizes the major takeaways from this study.

2.LITERATURE REVIEW

Travel Behavior of Immigrants

Findings of most researches on Immigrants' travel suggest that immigrants are more likely to use 'alternative' modes of transportation including public transportation, carpooling, walking, and biking than those of the U.S.-born (Blumenberg and Smart 2010; Tal and Handy 2010; Liu and Painter 2012; Blumenberg and Smart 2013; Smart 2015). An analysis of the 2001 National Household Transportation Survey using multivariate models with dummy variables for place of birth and year of immigration, in addition to socio-demographic characteristics and spatial variables shows that Central and South Americans are more likely to use public transit over a mix of modes (Tal and Handy 2010). Studies find that new immigrants are more likely to live in higher density areas that can be served by public transit and use transit more than less recent immigrants (Rosenbloom and Fielding, 1998). With more years in the U.S., public transit use declines and automobile ownership and use increases (Chatman and Klein 2009; Casas et al. 2004; Myers, 1996; Rosenbloom 1998; Tal and Handy 2010). However, immigrants are still more likely to use public transportation than on average for the population, regardless of the number of years they have lived in the U.S. (Rosenbloom and Fielding, 1998). Many of the previous studies on travel behavior and demand of transportation of immigrants focus on urban area while there is few research that studies the transportation needs of immigrants in rural area.

Individuals who arrived in the US recently generally have lower income and socioeconomic status than individuals who arrived before them (Tal and Handy 2010; Qian and Lichter 2007). Immigrants' high dependence on alternative modes of transportation is more a result of the limited access to automobiles due to financial constraints and difficulties in getting a driver's license, rather than a choice based on personal preference (Tal and Handy 2010; Valenzuela et al. 2005; White and Gill, 2015). Qualitative studies on travel behavior for low-income adults found that using transit services is often associated with unreasonable high time cost and stress and uncertainty with changing transportation availability, and performing provisioning tasks using transit is particularly difficult (Clifton 2004; Lowe and Mosby 2016). In fact interviews with homogeneous focus groups of Latino, Somali, and Hmong immigrants held by Douma (2004) in both urban and rural areas of Minnesota indicated that all groups prefer to drive themselves rather than use public transit. Despite the deficiencies of regular transit services identified in previous studies immigrants are still much more likely than others to rely solely on public transit (Tal and Handy 2010).

Language can be a barrier to using public transit (Sanchez et al. 2004) while immigrants are disproportionately having limited English skills (Qian and Lichter 2007). Analysis of the 2003 New Immigrant Survey data found that immigrants from Latino America and the Caribbean, Eastern Europe and Asian are more likely to speak no English and less likely to use English only compared with immigrants from Western Europe (Akresh 2006). Transit users with limited English ability have difficulties in understanding or finding useful route maps, timetables, station announcements, ticket machine instructions or station signs, and get rude responses sometimes

when they ask questions to bus drivers in accented English, or languages other than English (Liu and Schachter 2008). In Valenzuela et al.'s study (2005) on camionetas, an informal mode of transportation popular among Mexican immigrants, 73.3% of the patrons surveyed preferred drivers speaking their native language (Spanish), and 88% reported that they felt safer with Spanish-speaking rather than English-speaking drivers.

Culture and social network affect immigrants' travel behavior in many different ways. Smart's (2015) analysis suggests that living in an immigrant neighborhood influences travel mode choice strongly for immigrants. Use of carpools of immigrants is usually supported by a racially, culturally and linguistically based social capital as a result of ethnic neighborhoods (Blumenberg and Smart 2013). Latino immigrants are found to be open to transit and more "social" types of travel and the most likely to share ride among all ethnic groups held by Douma's study in 2004. Even though asking for rides and cars in the context of informal favors from friends or family is still sometimes accompanied by feelings of guilt or dread, according to a study on carpooling and borrowing vehicles among Mexican immigrants in California (Lovejoy and Handy 2011).

Benefits of Rural Transit Services

Tal and Handy's study (2010) on immigrants' travel behavior showed an association between lower auto ownership and living in a rural area, relative to living in a town or small city for the overall sample. Studies on rural transit at various geographical scales broadly identified that rural transit users are mostly transportation disadvantaged, being elderly, physically disabled, and/or careless, and thus "transit dependent" (Peng and Nelson 1998; Skolnik and Schreiner 1998; Lewis and Williams 1999; Southworth et al. 2005).

Trips for medical services, employment/education/training and shopping/nutrition account for most of the trips using rural transit. Such types of trip are essential for maintaining an independent life, as elderly people or those who need medical services would have to live in a nursing home if they have difficulties to get access to the services they need from home (Burkhardt et al. 1998, Skolnik and Schreiner 1998), as well as a feeling of independence, when the individuals have the mobility to get out of the house and engage in desired activities without asking for a ride (Godavarthy et al. 2014).

When losing transit services individual travelers will have to either use another mode of transportation, or cancel the trip (Southworth et al. 2005). Some common alternatives of transit are driving by oneself, riding with someone else, taxi, and walking. Cost per mile for driving, getting a ride and taxi used by previous cost-benefit analysis varies from \$0.455 to \$1.6 (Southworth et al. 2005; Skolnik and Schreiner, 1998). For time cost, Litman (2011) used a travel time rate of 25% of wages for off-peak and rural transit travel. Instead of monetary costs, substantial nonmonetary costs with respect to inconvenience, physical effort, and risk are involved in transit trips replaced by walking or hitchhiking (Skolnik and Schreiner, 1998). In Skolnik and Schreiner's (1998) survey of transit riders' response to lost service within the small town of Danbury, Connecticut, 10% of the respondents who use fixed-route transit would walk or hitchhike, and 29% of the respondents who use fixed-route transit or paratransit would cancel their trips. This high rate of trip cancellation (foregone trips) when transit becomes unavailable

indicates that low-cost mobility benefits account for a great portion of the total benefits for rural transit users, which is supported by the findings of Godavarthy et al. (2014). His cost-benefit analysis on public transit in rural areas across the U.S. indicates that low-cost mobility benefits account for 79% of benefits for fixed-route bus service and 95% of benefits for demand-response service. When both transportation cost savings and low-cost mobility benefit are considered, the average transit benefits per trip in rural areas was observed to be \$14.56 (\$13.50 per trip for fixed-route service and \$16.35 per trip for demand-response service) (Godavarthy et al., 2014).

The benefit of transit also involves having transit as alternative means of travel. Even for individual does not use transit, transit is an option for emergencies, for unusual occurrences, for the future, or for guests and tourists (Beimborn et al. 1998). Besides, the lower fatality rate of transit users compared with car that of car occupants (one tenth of the rate for car occupants) indicates that transit a safe mode of transportation relative to driving (Litman 2012).

Challenges for Rural Transit Organizations

In general, for public transportation providers being ‘rural’ means meeting the transportation needs of a small population dispersed over a large area. As the rural analogue to bus service in metro areas, rural transit systems transport smaller number of people for longer distance compared with bus systems in urban area (Kidder 2006). Thus it’s more challenging for rural transit systems to operate with a reasonable system efficiency to meet various transportation needs of their service areas. However instead of system efficiency, what really affects planning and operation of rural transit systems is the funding implication of small population base, which can be interpreted in two aspects.

Directly, a smaller population provides a smaller tax base for the construction and maintenance of transportation systems (Kidder 2006). Indirectly, Department of Transportation defines a rural area as ‘anything outside an agglomeration of 50,000’ for planning purposes, and because the Federal and State Governments fund rural public transportation and urban public transportation differently, being classified as a rural area due to a population lower than 50,000 already limits the funding that the local government could ever receive from the Federal and the State for its local transit system regardless of the local content. Many existing rural transit systems are funded under Nonurbanized Area Formula Program, Section 5311 of the Federal Transit Act (FTA), a formula grant program that authorizes both capital and operating assistance grants to public transit systems in areas with populations less than 50,000. Specialized transportation services for the elderly and persons with disabilities are available under Elderly and Disabled Individuals Transportation Program (FTA Section 5310). Job Access and Reverse Commute (JARC) Program (FTA Section 5316) funds new transit service in both rural and urban areas to assist welfare recipients and low-income individuals with transportation to jobs, training and child care.

For North Carolina, Community Transportation Program (CTP) is the major funding source for rural transportation systems. CPT is a combination of Federal and State funds and its application incorporates three programs into a single packet: FTA Section 5311, Rural Capital Program and Human Service Transportation Management Program. FTA Section 5311 provides up to 80%

federal participation of administrative and capital costs. NCDOT matches 5% state funds for administrative costs and 10% for capital costs. Small urban fixed route systems and regional community transportation systems are eligible to apply for up to 50% of the net operating costs associated with general public routes.

Besides the federal fund for elderly and disabled individuals (FTA Section 5310), County governments of North Carolina are eligible for applying for Elderly and Disabled Transportation Assistance Program (EDTAP), which provides operating assistance for the transportation of the state's elderly and disabled citizens, Rural General Public Program, which funds community transportation systems that serve the general public in the state's rural area, and Employment Transportation Assistance Program, which funds transportation service to employment for low-income individuals. Remand response providers of community transportation in North Carolina receive no general financial assistance for their operations; essentially all operating revenues must be earned from the provision of service under contract and from limited Rural General Public (RGP) state funding provided by NCDOT (NCPTA 2015).

Funding availability is almost always a concern for rural transit. Patching funds from a variety of sources, rural systems are aware of the serious impact that can result from the loss of a single funding partner. In most cases, the application of a single funding source is a time-consuming task that requires expertise in writing grants (Stommes and Brown 2005). Funding program can be a policy tool to guide the planning and organization of local agencies. New sources of federal funds, such as the Job Access and Reverse Commute (JARC) program established in 1998 which requires coordination of transportation services by participating organizations as a condition of funding (Federal Register, 1998), have encouraged interagency efforts to address the transportation needs of welfare participants (Blumenberg 2002). The JARC program generates opportunities for new partnerships, but partnership opportunities also may have been limited by the fact that coordination developed under the program were among those organizations already "at the table" when the application was developed and while implementation took place (Stommes and Brown 2005). Public agencies may compel their staff into following their organization's priorities and fulfilling the responsibilities outlined in their job descriptions rather than emphasizing external outcomes (Sarason and Lorentz 1998). When the promise of additional resources appears to be an important factor that motivates collaboration for transit agencies, transit agencies tend to be not as active in countywide planning efforts as they are in collaboration with others in particular transportation programs for welfare participants (Blumenberg 2002). Competition for limited funding among individual nonprofit, private, and public organizations is common in many communities where social needs outpace resources (Schlossberg 2004).

Data from the Department of Transportation indicates that much of the reduction of intercity bus services between 1982 and 2000 took place in rural area, as bus companies were no longer required to cross-subsidize low-revenue routes with profits from high-revenue routes under the Bus Regulatory Reform Act of 1982. The 1990 Americans with Disabilities Act (ADA) brought another challenge especially to rural transportation providers already pressed to serve geographically remote populations by requiring public transportation providers to make

transportation available to individuals with disabilities with specified requirements for transit systems as well as private, for-hire providers (Stommes and Brown 2002).

The way that rural transit is funded adds to the adverse impact on rural transit systems of the requirement for Medicaid transportation to use the cheapest way of transportation. Community transportation in North Carolina receive no general financial assistance for their operations of demand response service. Along with loss of Medicaid trips there is predicted to be loss of efficiency, local match and system recourses, adding to the burden on community transportation to meet the matching requirement of FTA funds and resulting in higher operating costs to the remaining participants in the program (NCPTA 2015).

While funding factors greatly affect the decision making and actions for coordination of rural transit agencies, “the human service transportation community has not been able to articulate a robust business case for coordination to motivate decision makers at federal, state and local levels and define a reasonable expectation of coordination outcomes.” (NCDHHS 2012)

3.BACKGROUND

Lee County Demography

Lee County is a rural county located in the middle of North Carolina. Adjacent to Chatham County, Harnett County and Moore County, Lee County is much smaller than its adjacent counties in terms of population and acreage of land. It comprises the Sanford Micropolitan Statistical Area, which is a part of the greater Raleigh-Durham-Chapel Hill, NC Combined Statistical Area. City of Sanford is the County seat. Manufacturing is the leading industry in Lee County. There are factories of worldwide manufacturing leaders like Moen, Wyeth, Coty, Tyson and Caterpillar. Frontier Spinning and Static Control Components, two worldwide industry leaders, were created in Lee County. According to the employer profile of Lee County for the 4th quarter of 2015, eleven out of the 25 top employers in Lee County are manufacturing.

According to American Community Survey (ACS) 5-year estimates, the total population of Lee County in 2015 is 59,418, and Hispanic or Latino accounts for 19.2% of the total population. According to the Census data, the percentage of Hispanic or Latino population in Lee County increased from 11.7% in 2000 to 18.3% in 2010, and has continued increasing from 2010 to 2015.

Compared with the percentage of Hispanic or Latino population for North Carolina indicated by ACS 2015 5-year estimates, which is 8.84%, Lee County presents a much higher percentage of Latino population.

Mapping the 2015 Latino population and its percentage by Census block group (ACS 5-year-estimates) shows that most of the Latino population are within City of Sanford but there is also a noticeable portion of Latino population on the outer fringe of the city limit (Figures 2 and 3). The highest percentage of Latino population shows up in southeastern Sanford, where above 50% of the Census block group's population is Latino. Both maps show that Latino population is generally concentrating in southeastern Lee County, where three major Latino housing areas are located: Thornwood Village Mobile Home Park, Dreamland Mobile Home Park and Pine Village Mobile Home Park, denoted by red dots in the maps below. All the three mobile home parks are on the fringe of the City of Sanford, either within or beyond the city limit.

Figure 1. Trend of Trend of Population Change in Lee County, Total and Latino/Hispanic, 2000-2015

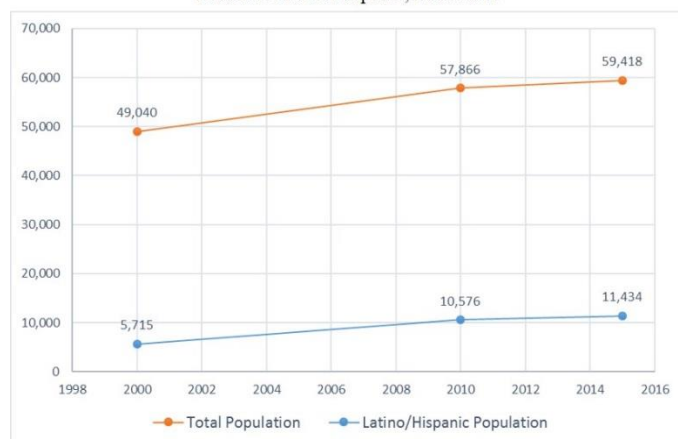


Figure 2. Spatial Distribution of Latino Population, Lee County ACS 2015 (5-Year-Estimates)

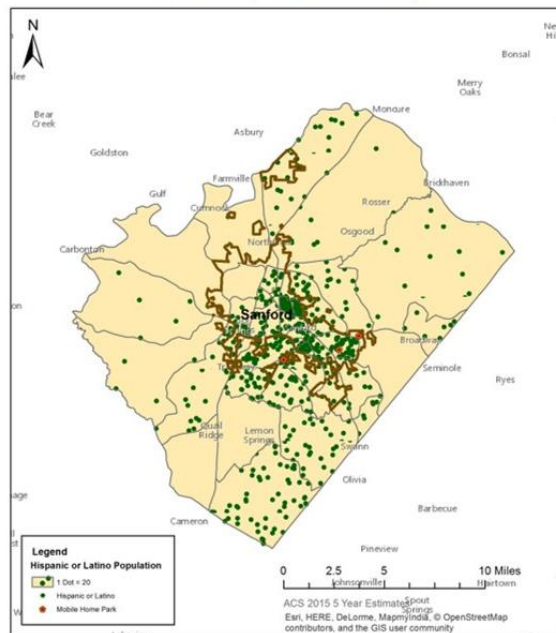
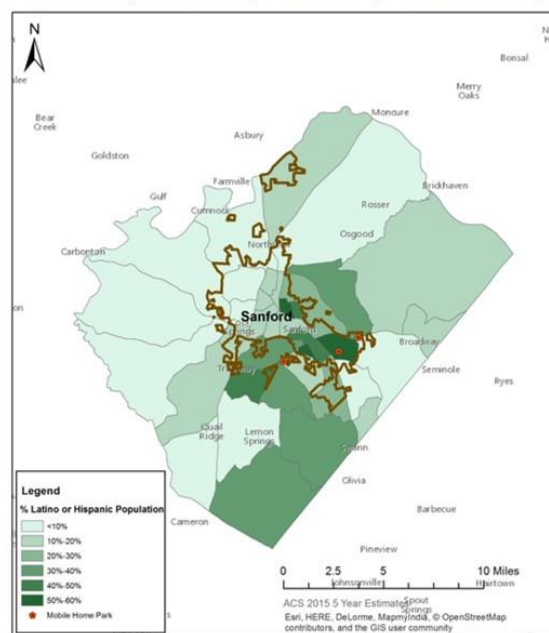


Figure 3. Percentage of Latino Population by Census Block Group, Lee County, ACS 2015 (5-Year-Estimates)



On the whole, the Latino community is younger than the communities of non-Latino origin in Lee County. The median age of Latino population in Lee County is 23.9-years-old, while the median age of the total population is 37.5-years-old. Also the Latino community consists of a larger portion of young parents. The percentage of Hispanic kids under 5 years old is 12.7%, while the percentage for the total population is 6.8% only. The percentage of Hispanic people between 25-44 years old is 31.2% while that percentage for the total population is 25.2%.

Figure 4. Hispanic Population of Lee County by Age ACS 2015 (5-Year-Estimates)

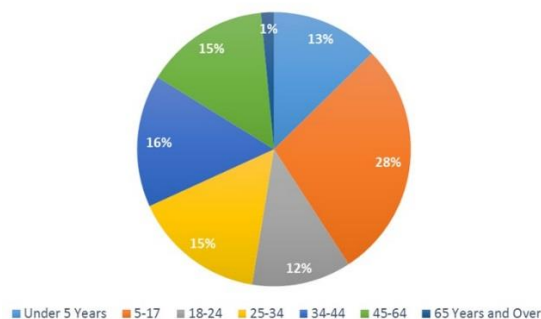
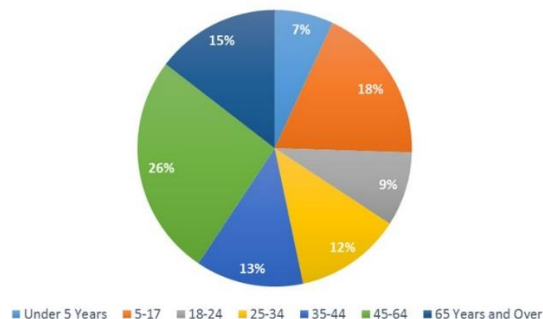


Figure 5. Total Population of Lee County by Age ACS 2015 (5-Year-Estimates)



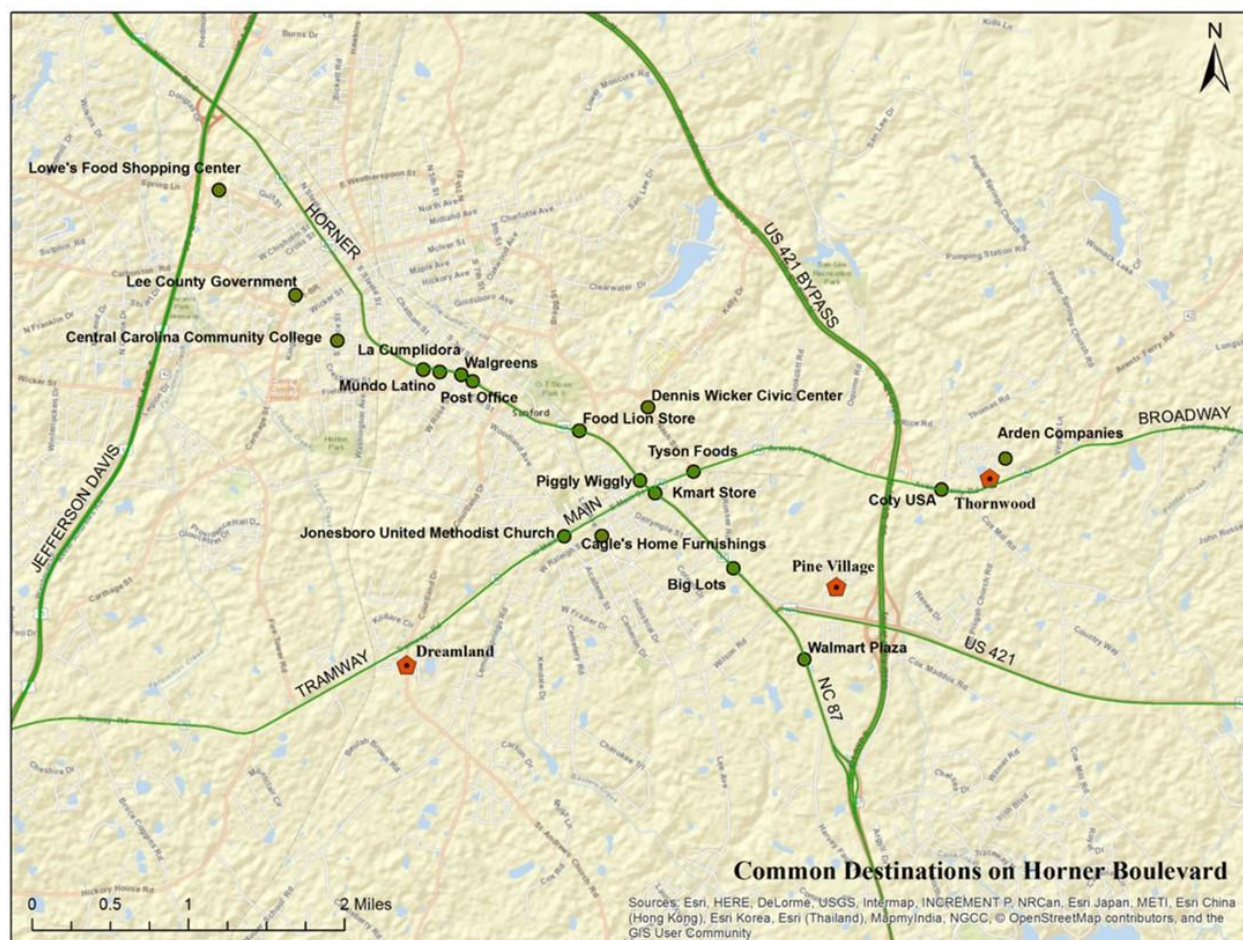
The unemployment rate of Latino population over 16 years old is 10.9%, which is only slightly higher than the County average unemployment rate, which is 10.3%. However Latino population in Lee County has a much higher poverty rate (33.0%) than the County average (18.1%) (ACS 2015 5-year-estimates).

In terms of English proficiency, it is estimated that about 11% of Lee County's total population, and 15% of Sanford's residents over age 5 speak Spanish with limited to no English speaking ability (White and Gill 2015).

Lee County is crossed through by Highway US 421 going northwest-southeast and Highway US 501 going southwest-northeast. Horner Boulevard is the busiest street in City of Sanford. Along Horner Boulevard are most of the major business activities and shopping centers in Sanford, including Walmart, Food Line and Piggly Wiggly Supermarket as well as two popular Hispanic stores: Mundo Latino and La Cumplidora. Not far away from Horner Boulevard there are three large factory employers: Coty US, Arden International Kitchens and Tyson Foods.

Leadership of the County's transit system has identified three major Latino communities in the City of Sanford that its transportation service and marketing efforts are targeting: Thornwood on Broadway Road, Dreamland on Tramway Road and Pine Village on Horner Boulevard. From any of the mobile home parks it is a less-than-15-minute drive to any destination along Horner Boulevard. However, it is a 50-minute walk from Thornwood, and a 40-minute walk from Dreamland, to the nearest grocery stores (Piggly Wiggly or Kmart) at the intersection between Broadway/Tramway Road and Horner Boulevard.

Figure 6. Some Common Destinations and Major Latino Communities on or near Horner Boulevard



Description of Lee County Transit System (COLTS)

- **Background**

The County of Lee Transit System (COLTS) was formed in 1992 to replace a group of uncoordinated transportation activities for human services, which were overlapping and duplicative, provided mainly by 5 different departments: Department of Social Services, Public Health Department, the Center for Independent Living, Senior Services and Lee County Industries. The Charter states that COLTS is public transportation. Today, COLTS provides most of the human service transportation for Lee County primarily through agencies and organizations contract with COLTS as well as transportation services for the general public.

The mission of COLTS is to provide safe and reliable transportation for the citizens of Lee County. In Fiscal Year 2015 COLTS provided over 59,000 trips, of which about 34% were provided to the general public and 66% were contract trips. The average trip cost for COLTS is estimated to be 1.90 dollars per mile.

- **Organization Structure**

As the lead agency for transportation services in the county, COLTS operates under Lee County Senior Services in a separate building. The Administrative and Marketing Specialist of Senior Services is in charge of writing grants and marketing for COLTS. The Transportation Coordinator, who leads the COLTS department and reports to the Director of Senior Services, is responsible for supervising system operations, preparing client billing and reports, developing budgets and administrating policies and procedure. The Route Scheduler and the Administrative Support Assistant also support the Transportation Coordinator in administration. The transit system currently has two part-time dispatchers, one working in the morning and the other working in the afternoon, and around 30 part-time drivers, each working no more than 30 hours per week. Because COLTS is a small department, its staff share work responsibility and duties as required for smooth operation of the system.

Funding for COLTS comes from federal and state grants as well as county funds and support contracts.

- **Service Modes, Pricing and Hours**

COLTS mainly provides demand response services, which are door-to-door rides upon request. General reservation shall be made by calling the COLTS office and COLTS requires reservation to be made at least two business days in advance in order to allow the scheduler to assign trips to drivers. However, clients who have their transportation paid by agencies or organizations contracting with COLTS shall reserve rides with the agency/organization, which causes a lot of confusion. From time to time COLTS staff receives requests of making trip reservation from Medicaid clients that are supposed to contact the transportation coordinator of the Medicaid program. Currently COLTS charges 4 dollars per ride per passenger over 5-year-old. The service area only covers Lee County.

COLTS provides out-of-county transportation services only to medical facilities in other cities and towns. Usually there will be only one COLTS van going to each town or city once a day, which means clients riding with COLTS to different medical facilities in the same town/city for appointments at different times all have to wait for each other. Availability of out-of-county transportation is only guaranteed for clients from certain programs, such as Medicaid. Because COLTS doesn't charge the general public the fully allocated cost for out-of-county transportation but has to cover the operating cost, non-contract clients will only get COLTS transportation service out-of-county when there is a COLTS van running that certain route for contract clients. Currently COLTS charges 17.5 dollars each way per passenger for the general public going out of Lee County.

From 2010 to 2014, COLTS operated a fixed-route called 'Dash Route' with 12 stops established near common shopping destinations, populated housing areas and the government center. The Dash Route didn't get much ridership and was terminated in 2014. After that COLTS changed its strategy to targeting at the underserved market, which are the low-income population and immigrants with limited access to private vehicles, and established 'Dash Express' in 2016, a 'semi'-fixed-route service targeting Latino immigrants. The COLTS van running Dash Express stops at the selected Latino communities two times a day regularly to pick up passengers, and drops the passengers off at their required destinations on Horner Boulevard. When the passengers are ready to go home they call COLTS office and COLTS will notify the driver to provide return trips. The price for Dash Express is 2 dollars per ride per passenger. Dash Express serves three communities: Thornwood, Dreamland and Pine Village.

It's complicated to give the exact operating hours of COLTS. Some drivers start working at 4:00 a.m. to pick up clients for dialysis in the morning. Early rides before 7:30 a.m., though, is not available in general, except for work trips, while the availability of such early rides is at the scheduler's discretion based on seat and vehicle capacity. COLTS will not operate after 5:00 p.m., except for transporting participants of the Ridability program, a program that receives a grant for transportation of disabled people and pays COLTS with the grant. COLTS will not operate on weekends either, also except for the Ridability program.

- Targeting Latino Population

The Lee County Community Transportation Service Plan (CTSP) approved by NCDOT in 2011 already recognized the enormous growth in Hispanic or Latino population and the need to reach out to the Latino community. Communication gap is a critical obstacle in providing quality service to the Latino community not only for both COLTS and the private taxi company called Pronto Taxi in Lee County. During the time when the CTSP report was prepared, COLTS staff could communicate on a very basic level with Spanish-speaking callers, and COLTS had tried to utilize a bilingual vehicle operator to translate when necessary. Pronto Taxi markets to Latino community but found it difficult to maintain a bilingual driver. The CTSP report stated out that additional marketing efforts, including outreach and accommodations for Hispanic, are necessary to expand the perception of COLTS to a broader audience and to reach potential riders. COLTS leadership also recognized the need to fill the slot of a Latino representative on the Transportation Adversary Board (TAB), as the most visible link between COLTS and the Latino

community (Kimley-Horn and Associates, Inc. 2011). The current Hispanic representative on the TAB is the Director of El Refugio, a non-profit organization mainly serving the Latino community by providing free ESL (English as Second Language) classes.

Given that Hispanic or Latino population in poverty accounts for 33% of the total population in poverty in Lee County while COLTS riders with a Hispanic name only provide around 10% of the ridership, COLTS leadership believes that there are a large amount of transportation needs of Latino population in Lee County that have not been met yet. Thus since 2016 COLTS has made a series of effort in providing services targeting at Latino population.

COLTS launched the advertising campaign “Call Zaida”. Zaida is a bilingual dispatcher who works from 12:00 p.m. to 5:00 p.m. Monday through Friday and provides Spanish telephone services. When Dash Express got in operation, Zaida went to large events for the Latino community and talked to people about Dash Express.

The Transportation Coordinator of COLTS showed great interest in collaboration with the Building Integrated Community (BIC) team to enrich transportation options for Latino population. With the help of BIC team COLTS designed a flyer with information about “Call Zaida” and all other general information for COLTS in Spanish. The “Call Zaida” flyers were distributed in Thornwood and Dreamland mobile home parks with the BIC team, and were brought to two popular Hispanic stores on Horner Boulevard: Mundo Latino and La Cumplidora.

4. METHODOLOGY

This study uses qualitative interviews to assess the transportation needs of Latino immigrants in Lee County, North Carolina. The study conducted 19 interviews in total, including 14 with Latino immigrants, 1 with the Director of El Refugio, a non-profit organization that promotes opportunities for interaction between cultures by providing free language classes, 2 with leaders of COLTS transportation and 2 planners from the City of Sanford. The interviews with Latino immigrants each last 30-45 minutes, and all participants are at or over 18-years-old and living in Lee County. The participants were recruited through free evening ESL (English as Second Language) classes offered by El Refugio. The ESL classes were provided every Monday, Tuesday and Thursday from January to March in 2017 at Jonesboro United Methodist Church in Sanford. The interviews were conducted during class time on Monday and Tuesday in February and March, 2017. All interviews with Latino immigrants were conducted with the presence of one interpreter, usually a bilingual volunteer for El Refugio.

The interview with the Director of El Refugio provided an insight on the transportation needs of Latino immigrants in general from a non-profit organization's perspective. According to the Director of El Refugio, the ESL class students with Latino or Hispanic origin are from countries including: Mexico, Honduras, Salvador, Guatemala, Costa Rica, Columbia, Venezuela, Peru, Puerto Rico and Dominican Republic.

The interviews with the Transportation Coordinator of Lee County, the Director of Lee County Senior Services, and two planners from the City of Sanford provided details adding to the background information of COLTS transportation and Lee County, which provided the perspective from the local governments to be compared with the Latino immigrants' perspective regarding how to meet the transportation needs in a rural area.

The interviews asked for the participants' experience of getting around Lee County and travelling to nearby counties, how they feel about the transportation in Lee County, what they wish could be different regarding how they get around and their opinion on the transportation needs of Latino immigrants in Lee County in general. For privacy reasons the interviews didn't collect name or other demographic information such as age and country of origin. The participants consist of six female participants and eight male participants, living in Lee County for 1-21 years. Among the 14 participants, only one participant has no driving experience at all, one just learnt to drive, one is learning to drive and the others are used to driving to get around. Although none of the participants is currently living without any automobile, 6 participants moved to Lee County without a car and thus had such experience of living in Lee County without a car.

Since all interview participants are recruited through evening ESL classes, the sample may lack diversity in some aspects. However the participants showed familiarity with information of other Latino immigrants, since members of the Latino community in Lee County are easily connected one way or another, through ESL classes, families, friends, employment, and church events.

5. INTERVIEW FINDINGS

Major Issues Discovered

The interviews with Latino immigrants released the following issues regarding the transportation needs of Latino immigrants in Lee County.

- Latino immigrants are having challenges in getting alternative transportation for mandatory and maintenance trips.
“People who don’t have a license or don’t know how to drive, they just get together and get together, having family members and friends give them rides...I’ve seen people there rather asking for rides because they cannot walk from there (Lemon Spring). They go to the grocery stores. A lot of people don’t go out because they don’t have the way to go there.”
- The mode and time mismatch between the need and the service provided diminishes the help of COLTS transportation to Latino immigrants.
“I think (Dash Express) is pretty good for people running their errands around Horner Boulevard. But I would like to see it come a lot earlier, for people that work in the morning, people that are going to job factories like Tyson.”
- There are many Latino immigrants going to Moncure Community Health Center regularly that need alternative transportation, but the price and waiting time create barrier.
“It will not be easy. For example, I may have my appointment at 8:00 a.m. And the last person may have his appointment at 3:30 p.m., and I will be staying at the clinic till, like, 4:00 p.m., for all day. It’s not easy. I will lose the whole day.”

“Thirty-five dollars is a little bit pricy. Twenty dollars will be good.”
- The amount of money Latino immigrants paid for rides to work is generally lower than the fee charged by COLTS.
“I provide rides to two ladies to work. They have used COLTS but it’s too expensive. One lady told me that she paid 4 dollars for every ride. She’s riding with me now. One of them pays me 20 dollars a week. For the other person, only 10 dollars. Because she lives closer.”

“Sometimes I won’t take it at all, like, it’s usually on my way so I don’t really charge them.”
- Almost all interview participants think a fixed-route bus service is more convenient.
“More convenience for people, means having points where the bus makes certain stops at populated areas.”

“The service can be improved by implementing what I mentioned earlier, adding bus stops, scheduled, at fixed locations, that I can walk to and just get on the bus.”

- Working schedule tends to frame the time arrangement for other activities.
“I usually go on the weekend. The time I go is around 10:00 a.m. If I do have to go during the weekday, I wait till I get off work. It’s around 3 o’clock.”
- Latino immigrants are making trade-offs between money, time, feeling of independence and avoiding being stopped by the police.
“It’s more comfortable to use public transportation because I pay for my transportation. Independence, you know.”

“I would depend on my wife to get me home because she had a license, I would rather ride with her. Now I feel a lot safer. I feel like I can drive more, go anywhere I want, and get there on time.”

- There is a lack of public awareness and complete information of COLTS transportation.
“I was not aware that COLTS was an option when I first got here. I don’t know how recent the service is.”
“I saw some COLTS vans here, but I didn’t know when they would move.”

Modes of Transportation Currently Used by Latino Immigrants

As other people living in rural area, Latino immigrants in Lee County mostly depend on automobile to get around, either driving by themselves or getting rides from others.

Among the 14 immigrants interviewed, there is one participant that doesn’t drive, one that just learnt to drive and one that is learning to drive. Being able to drive one’s own car gives the participants the feeling of being independent and capable of managing their own time.

“Now I have my own vehicle and I feel great. If I have an emergency I can drive my car and do whatever I need to do. When I didn’t have a car, I have to be waiting there and it’s worse in an emergency if you have to wait and wait.”

Five out of the 14 participants moved to Lee County with a car, or bought a car right after they moved to Lee County. For the rest of the participants that didn’t have a car when they just moved to Lee County, they mostly rode with family members, friends or co-workers. There is one participant who moved to Lee County without family and was actually using the transportation service provided by a taxi company, which charged at least 15 dollars per ride within Sanford. To most participants, taxi is never an option due to its prohibitively high cost. *“Taxi doesn’t really work”*, said by one participant, *“They charge 25 dollars. Not out of Sanford. Just one-way.”* Regarding paying for gas or not, usually they pay the person giving

them ride to work at 10-30 dollars per week, while for trips for other purposes it depends because in many cases people mean to help each other. The true misery in getting rides from others, is the endless waiting time and the feeling of bothering others even when they are paying. When getting rides from others the participants may wait there for hours until the point the driver eventually show up or they have to cancel their appointment, while *“There never an exact time when the driver could be here”*. Once those participants who used to ride with others have their own vehicles they also provide rides to others because they see the necessity.

There are five participants who used to ride with COLTS to work and to the ESL class at Central Carolina Community College (CCCC). They knew COLTS at the first place through their co-workers or through the teacher of the ESL class. No one seemed to get information about COLTS by themselves through internet, newspaper, radio or TV program, or job fairs. Even those actually riding with COLTS didn't know they could use it for trips to stores, banks, and appointments, while the only participant who actually asked COLTS driver if he could get a ride to the laundromat didn't get the right response due to communication failure.

“I said: ‘you can ride...the laundromat?’ He said: ‘I’m sorry. The laundromat, no, no go. Only for school today.’ I speak little English. He might not completely understand, or maybe I didn’t completely understand what he said, it could go two ways.”

Regarding how safe the immigrants interviewed feel when getting around in Lee County, it's interesting to notice that several participants used words like *“cautious”* and *“careful”* to describe their own driving behavior while feeling nervous about the others on the road. When talking about driving experience, whether with or without a license, the participants said they *“drive under speed limit”, “obey the rules”* and *“just strictly stay on the speed limit, not more, not less, and just really careful, really attentive”*, but they saw *“a lot of people driving with the phones in their hands, texting and talking on the phones”, “over the speed limit”* and *“not cautious enough”*.

Transportation Needs of Latino immigrants in Lee County

Out of the 14 interview participants, eleven thought they did encounter challenges regarding travelling around Lee County. When talking about these challenges, they described frustration from not being able to manage their time due to lack of transportation options, uncomfortable feelings of bothering others when asking for a ride, stress associated with driving and anxiety caused by the uncertainty in whether they can get a ride or not.

“It was complicated. I would get to work late. Sometimes I would not even get there. It’s a lot of time. He was just not there on time.... Since that was the only person I would call, they probably would say ‘Oh he’s calling again’ a lot of times.”

Availability of transportation means access to the services, the activities and the products at the trip destinations. While people are withstanding the uncomfortable feelings or stress to get transportation, they are connecting themselves to work, to grocery stores, to laundromats, to banks, to schools that their kids attend, to clinics and to churches.

Transportation to work is the most-frequently mentioned transportation need by the interview participants. At least 12 out of the 14 participants work or used to work. Two of them used to carpool with others to work and pay every week for the rides to work before they can drive their own vehicle, one used COLTS transportation to work for six months, and two are still riding with others to work.

For the participants who work, they work at factories except for one participant who is taking a part-time job at a store. Two participants are currently working out of Lee County. The participants mentioned a few factories that many Latino immigrants work at: Coty US, Static Control, Magneti Marelli, Tyson Foods, and Pilgrim's Pride Corporation, a chicken plant on the fringe of Lee County.

Family members living together may have only one car and different working schedules. Sometimes they are able to work around everyone's schedule. One participant said *"I recently found a part time job that I can do because my husband is available in the morning time and he takes me to work."* And another said *"We had different working schedules. One worked in the morning and the other in the evening. So one would drive at day time and the other would drive at night."* In another case the person who doesn't get to use the car would need alternative transportation to work, like this participant who said *"I worked the second shift and my parents worked the first shift. They would have the car so I wouldn't have transportation."* Usually the only feasible alternative option would be getting rides from others, mostly from co-workers.

Getting rides from others is not very reliable in the way that the person providing the ride may be late. Such unreliability becomes critical when people are using this transportation option to work while it's uncertain if they can get to work on time or not. Another challenge in riding with others to work is that, every time when the working schedule of either the driver or the rider changes, the rider has to again go through all the anxiety and feeling of bothering others in finding someone to give him a ride, and this type of situation is not rare. One participant used to ride with a friend but *"he had another job somewhere else"*, so the participant *"couldn't commute with that person and had to ask other people for rides."* And another participant mentioned how quickly he changed his job: *"I got here in February, and then got a job, but then got a different job in March."*

Another frequently mentioned transportation need, is to travel out of the County. Except the two participants working in other counties, participants who want alternative transportation option to travel out of county usually make out-of-county trips for medical services, and in most cases they travel out-of-county to Moncure Community Health Center in Wake County that provides free or discounted health services to qualified people. Different from the challenge in transportation for work, which is usually associated with getting alternatives of driving by oneself, the challenge in out-of-town trips is usually the stress or fear associated with driving. The stress in driving that annoys people is usually due to the participant's age, or lack of driving experience. Some participants have the fear of being pulled over by the police. Such fear is not necessarily related to driving without a license, as said by one participant, *"When I was on the highway I felt like because I am Hispanic I will be stopped automatically."*

The interview participants also make trips to run errands. Most participants prefer to go to stores, to wash clothes and to pay bills on weekends, unless that person is not working. Walmart, Food Lions and La Cumplidora, a Mexican store on Horner Boulevard, are the most common places they mentioned for grocery shopping. Perhaps due to the certain economic status of the participants, they don't have access to services like cloth washing or online banking, at home, and that generates the need of trips to laundromats and banks. Again if they don't drive and have to ask a favor from others, there's always uncertainty in whether and when they can have their clothes washed, or bank account checked, along with the worries that those they ask for help may feel bothered. One participant who asks friends for rides to run errands said *"I didn't (want to) bother them. When I had to go and check my account at the bank, I was just not sure if they would be okay with taking me there."*

Not only did the interview participants talk about their own transportation needs, they also mentioned the similar transportation needs of other Hispanic people they saw as they provided rides to others to work, to medical facilities out of the county, and to run errands.

Besides daily transportation needs, some participants described their unpleasant experience of getting transportation in emergency, which demonstrates a demand for a back-up transportation option when something unexpected happens and people need transportation immediately. Informal reports indicate the serious transportation problems of many low-income working parents if they are at work when an emergency arises with their children (Nightingale 1997), the evidence of which can also be found in the interviews for this study, as three participants described the experience or worries of their children having a medical emergency.

"My son got a fever and I looked for a ride, but they wouldn't come. Two hours later someone finally arrived. Then when we left the hospital we had to wait again for them to come."

Responses from the interview participants show that Latino immigrants in Lee County make trips mainly to meet the basic need of life, e.g. work, grocery shopping and medical services. Meanwhile, the availability of transportation affects the ability to work, the frequency of making trips, and also the sense of independence. People need transportation to maintain a basic quality of life, but they need reliable, affordable and convenient transportation for an independent and less stressful life, for better management of their own time and for more engagement in social activities.

"If I have access to transportation I might be able to work full time because my husband would not have to pick me up to go home."

"(Before I got my car,) without my parents going out to certain places, I wouldn't go out. Now I have my own car. I go out just whenever I want."

"(If) having the transportation available during weekends I will be able to visit a friend."

Expectations for Public Transportation

Seven participants said they used public transportation in other cities before they moved to Lee County. Most of them have a positive impression of the public transportation system they used. One participant described the public transportation system in his home country as *“a very convenient system, not only accessible but affordable.”* And another participant used to live in California said the public transportation there *“was convenient for me”* and he *“felt nice about it.”* Even if the public transportation service the participant used before is not really comfortable or safe (One participant said *“The buses are very, very tight. Everybody is there in the bus basically, and I had to ride on top of the bus”*), it took time for them to get used to the life in Lee County, which almost completely depends on automobiles. The participant said *“When I got here, I found it weird that there’s actually no public transportation. I would imagine that there would be.”*

Whether having experience of using public transportation elsewhere before or not, ten participants explicitly expressed their expectation for a fixed-route public transportation system in Lee County. The phrases frequently used in their description of the public transportation they would like to see in Lee County are *“certain stops”*, *“established routes”*, *“schedule”*, and *“a bus system in large cities”*, and by saying “large cities” the participants meant Durham, Charlotte, Fayetteville and Los Angeles where the population is large enough to support a real mass transit system. The other participants didn’t explicitly say that they wanted a fixed-route bus system in Lee County, but they were actually describing the features of a fixed-route system in the comparisons they made between public transportation and other modes of transportation.

The participants expect a fixed-route transit system for a variety of reasons. One is reliability. One participant explained that if using a fixed-route bus service, *“you are kind of in the system that is already scheduled punctually”* and thus *“you know that it’s going to take you 50 minutes to get to a place”*. One other participant thought the good thing about a fixed-route bus service is that *“[Y]ou know your destination and you know where to get off”*. This is in contrary with what is considered a big disadvantage of a demand-response transit system based on the participants’ experience or knowledge of demand-response transportation service in general. One participant saw that *“at Coty, there might be times when people arrive before the time they start work, and there might be times when people arrive 20 minutes late. There is not a consistent arrival time.”* Another participant expressed the worry that *“Sometimes the bus driver may not know where to go and they may ask questions”*.

Almost reversing the general opinion of fixed-route and on-demand transportation service, a fixed-route system seems to provide more flexibility to the interview participants because therefore there’s no need to plan every trip ahead of time in order to reserve a ride. As put by one participant, *“You don’t know you are going need to do something or go somewhere. Therefore you can’t even schedule your trips.”* According to another participant, an ideal public transportation system would be that *“[I]f you have to get on the bus you would be get on the bus and get dropped off, at whatever time it’s convenient for you”*.

There is another reason for the preference for fixed-route bus system specially associated with language barrier, brought by one participant, saying that *“You don’t have to make any conversation with the system of public transportation”* if it’s a fixed-route system.

In terms of the service area, the interview participants want to see stops at Hispanic neighborhoods, grocery stores they usually go to, places “where people gather” and factories. In terms of the operating hours, they justified the demand for public transportation at night and during weekends with two major reasons. First, there are people working at night that have particular difficulty in getting a ride and second, people only run errands when they are not working, which are usually after work or on weekends. Most participants hope that public transportation would help to reduce the transportation cost of gas and vehicle maintenance, as well as the potential expenditure to handle tickets from the police. A reasonable price charged by the public transportation system should be comparable with the amount people are paying for the rides they get, which equals around 2-3 dollars per one-way ride within Lee County.

Value and Use of Time

For most of the interview participants, their working schedule frames the time arrangement for other maintenance and discretionary activities such as shopping and laundry. Those trips for daily chores are not mandatory, but are not completely optional. People who work during day time on weekdays would have to do those trips at night or on weekends, and thus would need transportation during these times.

The participants don’t really have a common working schedule because they work in factories based on shifts. Work shifts play an important role in how factory workers manage their time and work around everyone’s schedule. When asked for the time they work, many participants answered with the shift they are working instead of the times they start and end working. First shift or day shift is generally between the hours of 6:00 a.m. and 6:00 p.m. Second shift or afternoon shift is between 3:00 p.m. and 11:00 p.m. Third shift is between 11:00 p.m. and 6:00 a.m. Hours vary by company, but most shifts fit into these time frames. People who work the third shift may experience more difficulties in getting rides at midnight. As indicated by one participant, *“I work the third shift, it’s around 11:00 p.m. I had difficulty in asking other people for rides because they usually have their own personal stuff.”* Other participants who suggested COLTS provide night services also saw public transportation at night a great help to those working at night.

Although a lot of jobs are paid 7.50 dollars per hour, they are very important to the immigrants interviewed. One participant said *“I feel great (about life in Lee County). My job and everything”* Another participant *“moved to Lee County to earn enough to support the family.”* The participants may move from place to place for job opportunities. As said by one participant, *“I did have a job in Atlanta, but it was no longer available. So I moved to Lee County. where I have my friends that were able to get me a job.”* Because the participants are paid hourly, they would lose income if they are late for work while they cannot use the time spent on transportation to do anything.

Neither waiting for the driver nor waiting for the riders feels good. Participants interviewed agree that people all have their own schedules. *“It could be just 10 minutes for them out of a day to take me to the job but in the ten minutes they can probably take their own kids to schools or do their own personal stuff”*, said by one participant. They are trying to respect the time of others. One participant who provided rides to others said *“If they give me a specific time, I would arrive at that specific time.”* Another participant used to pick up several people for work and said in the interview that *“Certain people would have me wait, which affects the other people that were prompt, and I will just leave.”* However in practice there is always difficulty in working around everyone’s schedule.

“I kind of understand the struggle of people who do know how to drive about giving rides. I understand that they also have a busy week sometimes and they might have children and other stuff that they need to take care of. But they also need to give you a ride.”

How the Latino immigrants manage and value time partly explains their expectation for public transportation system. Compared with short traveling time, reliability is more important. Some participants don’t mind longer travel time as long as they can get to their destinations on time. But if there is uncertainty in time of arrival, the longer travel time would be less tolerable. *“The service needs to be on time. That’s the bottom line”*, as emphasized by one participant. Participants who are young working parents seem to value their time the most highly. On the other hand, people who don’t work have much higher tolerance in the time they are willing to spend on transportation. For young parents tasks requiring immediate movement may come up at any time and thus they need some flexibility in when they make trips and they don’t want to wait if they need to have something done.

Trade-offs between Time, Money, Independence and Others

Analysis of these interviews identified some potential trade-offs that Latino immigrants in Lee County would make when choosing the mode of transportation. They are ‘potential’ trade-offs because in many situations Latino immigrants in Lee County are left with no option but to drive, regardless of the legality. Due to the current political environment that is not very friendly to Latino immigrants, even the only option left is further limited. As put by one participant, *“I have a lot of friends that need transportation, and now with the new President, some certain friends are scared to drive, so even with having a car, they don’t want to drive.”*

The most obvious trade-off is between time and money. Sometimes the ability to manage one’s own time is really about the sense of independence. Some participants would choose public transportation in order to not depend on others, even if that would take longer travel time or additional payment.

“Bus is cheaper. You spend a little more time because you don’t spend too much money on transportation.”

“It was probably way much less payment for transportation before I got my own car but it’s way much better having my own car because (otherwise) I would have to depend on other people and go about their schedule.”

“It’s more comfortable to use public transportation because I pay for my transportation. Independence, you know. If my friends give me a ride, they give me a ride, it’s good. But sometimes they are working and I need to wait.”

There is one situation mentioned by a few participants in which people may choose to depend on others even when they do know how to drive and have cars they can use. That is when people don’t have a driver’s license and are afraid of being stopped by the police. They’d rather ask other people’s favor, or wait for the family member living with them who has license for rides. It was mentioned by one participant that *“There are a lot of people who decided not to drive because they don’t have a driver’s license. I had provided rides to such people a lot of times. It’s not like, every day, but it could be like, every other week.”* However when those who don’t have driver’s license need transportation urgently and no one is available to provide them rides at that moment, *“they drive with fear”*. *“They know that it’s wrong, but it’s just a necessity”*, said one participant.

Insights from Interviews with COLTS Leadership

Two interviews were conducted with COLTS leadership, one with Sidney Morgan, the Transportation Coordinator of Lee County. The Transportation Coordinator directly reports to the Director of Lee County Senior Service, Debbie Davidson, who participated in the other interview. COLTS leadership recognizes the needs for alternative transportation of Latino immigrants in Lee County as well as many challenges in meeting the transportation needs in a rural area like Lee County.

COLTS has been adjusting the modes of service oriented to the clients’ preferences. The fixed-route service that once tried, Dash Route, failed, because *“people didn’t want to walk to stops. We set up stops at shopping centers, housing areas, and the government center, but the major passengers on the route were elderly and disabled. We conducted customer surveys and people said they want to be picked up from home.”* said Sidney Morgan. After that, COLTS started Dash Express that serves three major Latino communities, *“targeting a group with unmet need”*.

While COLTS leadership recognizes that there is “unmet need” and has been trying to reach out to people with special transportation needs, the system’s ability in meeting such needs is limited. In fact, COLTS leadership holds a paradoxical attitude towards enhancing public access of the transportation services. On one hand, COLTS does want more ridership at one time on one vehicle, because *“for every empty seat in a COLTS vehicle running around Lee County, COLTS is losing revenue”*, said by Debbie Davidson. While on the other hand, COLTS hesitates to promote public access more with the concerns of the limited service capacity of the system and lack of extra resources to expand its current capacity. If the system has to purchase more vehicles and hire more drivers in order to fully meet the diverse transportation needs of the general public

without a tremendous increase in number of passengers per vehicle per trip, the slight increase in revenue will not be able to cover the additional capital investment in vehicles and the driver's salaries.

As put by the Sidney, *"It's all about funding"*. Although COLTS is not profit-driven, it has to generate the local match for the federal and State grants from its operating revenue. There is always the concern about whether the revenue will be able to cover the cost. *"We based our fare on gas prices, maintenance cost, and drivers' salary. Every time we send a COLTS van out the average cost is 10.65 dollars, then we figure out how much we will have to charge."* Sidney explained. And Debbie added that *"Grants only pays 7 dollars. If COLTS runs over budget, I would have to ask for more money from the County Council. Can I do it? Yes. Would it be easy? No."* The COLTS leadership also recognizes the difficulties in getting more funds as a rural transit system. *"Even if we are classified as Small Urban we will get more money to do more stuff"*, they said, *"but not until Sanford gets 50,000-60,000 population."* The limitation on available funding put by the classification based on population was also mentioned by the planners from the City of Sanford.

"County government is very difficult." Debbie commented. Since about two years ago the Medicaid program has been required to use the cheapest transportation for Medicaid clients. As a government entity, COLTS has many regulations regarding safety, vehicle maintenance and weekly working hours of employees to obey, and thus very limited room to reduce the fee it charges its clients. As a result, COLTS has lost many of the Medicaid trips it used to provide and thus the revenue, which adds to the difficulty in expanding services and reducing passenger fees for the remaining clients. Sidney criticized *"North Carolina is one of the most conservative states. What those people don't realize is that in rural central Carolina people need transportation just to do grocery shopping and they don't get it. They pay a premium price for it."*

As a county-based transit system, COLTS serves many people in need of alternative transportation to sustain a life. Agencies and organizations contracting with COLTS normally serve elderly, physically or mentally disabled clients, people who needs financial aid for medical services, low-income workers, and unemployed people taking job trainings. *"If I have more funding, I would first provide more trips to dialysis facilities, to the hospital at Duke University and to Fayetteville VA medical center because I see a lot of needs to go there"* said Sidney and agreed by Davidson by saying that *"Dialysis trip is a life necessity."* *"I would be very glad if someone else can provide cheap and good transportation to help the Latino community."* Sidney said, recognizing the difficulty for COLTS in meeting all the unmet transportation needs in Lee County.

Reaching out to people with special transportation needs is another challenge for COLTS. *"We only have this amount of money for marketing,"* said Debbie, *"We go to every job fair. But low-income people, they don't look at the lee County webpage, they don't go to job fairs, they don't read newspaper and they have no internet service. I've been working here for 25 years and the challenges I have now are still the same as those I had 25 years ago."* Besides, Lack of local Spanish media adds to the difficulty in reaching out to the Latino community in Lee County.

6. DISCUSSION

The study obtained opinions from both Latino immigrants and COLTS leaders on some key elements of a public transportation service: service modes, service availability, service pricing, on-time performance, communication and information availability. A comparison of the perspectives of the (potential) service receiver and the service provider would generate useful information for COLTS to recognize the current mismatch in the services targeting Latino population and thus to identify opportunities to better serve the Latino population in Lee County.

Service Mode

The Latino immigrants interviewed either suggests that COLTS establish a fixed-route bus service, or simply equals public transportation with fixed-route transportation service. To the interview participants, a fixed-route service with established schedule and certain stops that doesn't require phone reservation means more convenience. While according to COLTS leadership, fixed-route service was tried for 4 years and terminated in 2014 because there was never enough ridership to cover the operating cost. The customer survey indicated that the targeted clients at that time prefer door-to-door services.

COLTS now still provides a 'semi'-fixed-route service, Dash Express, which doesn't require reservation in advance and operates Monday through Friday. The COLTS van running Dash Express picks up passengers at three mobile home parks at 8:30 in the morning and 1:30 in the afternoon and drops the passengers off at any location on Horner Boulevard as requested by the passengers. As pointed out by one interview participant, the current pick-up times of Dash Express are only suitable for non-work trips, such as trips to grocery stores, while many work trips that need such service are in early morning or at night.

The interview participants suggested the following locations where they think COLTS should set up bus stops: major Hispanic housing areas, such as Thornwood and Carthage Street; large supermarkets, such as Walmart; Mexican stores, such as La Cumplidora; places "where people gathering", such as McDonald's; and factories where many Hispanic people work, such as Coty, Tyson Foods, and Pilgrim's Pride Corporation. However given that Dash Express currently doesn't have much ridership, while COLTS is only subsidized by FTA Section 5311 for up to 50% of the net operating cost of any fixed-route service, COLTS sees no financial feasibility to implement any other fixed-route service other than the current Dash Express.

Service Availability

The interview participants suggested that COLTS extend the operating hours. To fit many Latino immigrants' working schedule, it was suggested that COLTS could collaborate with factories where many Latino immigrants work, and set up certain pick-up and drop-off times in accordance with the time of different working shifts. Also the interview participants anticipated that people who work at night/during weekends, and people who only have time to run errands after work or during weekends would use COLTS transportation service more if it is available at night and on weekends.

From COLTS's perspective, however, the leadership is concerned about the extra expenditure on utilities and office staff's salaries in addition to the operating cost and drivers' salaries because the COLTS office would have to remain open during the extended operating hours. Particularly, COLTS leaders explained that COLTS is operating on Thursday and Friday nights and Saturday for Ridability program clients with the program's grant for disabled people but Latino immigrants are considered "the general public" and thus are usually not eligible for this program.

Service Pricing

Most interview participants expect a lower passenger fee than the current 4 dollars per trip per adult charged by COLTS for trips within Lee County. The price they suggested is between 2-3 dollars. They argued that with the current fee schedule a passenger riding with COLTS to work every weekday would pay 40 dollars every week just for transportation to work, while many Latino immigrant workers are paid at only \$7.5 per hour. If they pay to ride with a co-worker to work, the weekly payment is between 10 and 30 dollars. Also they expect a greater discounts for pre-paid tickets, as one participant suggested that COLTS charge 20 dollars for tickets valuing 40 dollars. According to COLTS leaders, for each ride a COLTS van provides within Lee County the cost for COLTS including driver's salary, gas and vehicle maintenance is estimated to be 10.65 dollars while the grants only pay 7 dollars. Thus, it would be difficult for COLTS to lower the passenger fee since it's charging just enough to cover the cost of each trip COLTS van makes.

Although some interview participants do have the need of alternative transportation to go out of the County themselves or see such need of other Latino immigrants, the price of out-of-county trip charged by COLTS, which is 35 dollars for round trip, seem to be an obstacle for a lot of Latino immigrants to use COLTS. In the perspective of COLTS leadership, however, in consideration of the potential risk of being caught driving without a license, the price for out-of-County trip charged by COLTS is not too much. However, many Latino immigrants do drive to Moncure with stress or fear, since they are going to the clinic in Moncure for free or discounted medical services and could probably spend the 35 dollars for more urgent uses.

Information Availability and Completeness

From time to time, government and non-profit employees mention distrust in governmental entities as a barrier in providing service through a county-run transportation system to Latino immigrants. While some participants did ask if COLTS requires the rider to show any ID in the interviews, it indicates rather the lack of complete information about COLTS to Latino immigrants than an issue associated with distrust in government. Some participants even wondered if COLTS is a public sector or a private company.

The interview participants demonstrated different levels of familiarity with COLTS transportation. Except the four participants never aware of COLTS transportation, there are four participants who had seen COLTS vans but thought they only transport a particular group of people, like kids to school or patients to the hospital, and six participants who or whose family member had actually used COLTS but didn't know they could use it for purposes other than the particular one they were using it for.

When provided with information about COLTS transportation and showed the “Call Zaida” flyer, the participants showed great interest but wondered if COLTS would transport them to work earlier than the general operating hour, or pick them up if they live far from the City of Sanford. Such information is not available on the flyer or any marketing material for COLTS because it really depends on availability of seats as well as where the client is. Besides, many interview participants thought the prices listed are for round trips even though it is noted on the flyer that all prices listed are for one-way ride only. It may not be a big deal for clients familiar with COLTS transportation to call the COLTS office to clarify any confusion or to figure out the exact answer to a particular question, however it might further prevent people with limited English proficiency and not familiar with the transit system from using COLTS transportation if they could not conveniently get all the information regarding how to use COLTS.

On-time Performance

The interviews with Latino immigrants found that although waiting time doesn’t matter as much as punctuality of times of arrival, the acceptable waiting time for participants is around 20-30 minutes. However it is stated in the transit system’s passenger guideline that on-demand service clients should be ready for pick-up an hour before their appointment times. The transit system has to get as many passengers on board at one time as possible for higher system efficiency. COLTS only guarantees to drop off the clients before their appointment times while the COLTS van might arrive at any time within the one-hour range. Sometimes clients wait for almost an hour, while sometimes they get dropped off much earlier than their appointment times.

Since the interview participants hold positive attitudes toward public transportation in general, some of them would still prefer using public transportation despite the longer travel time for other advantages of public transportation. However the travel time should still be within a reasonable range. While it is more economically efficient for the transit system to pick up and drop off different clients along the route of a COLTS van, being on the van for one hour for a trip that takes 4 minutes to drive doesn’t seem reasonable to the participants.

Communication

The interview participants think the COLTS drivers should know a little bit Spanish in case an emergency happens. While COLTS currently has only one bilingual driver, it’s already difficult for COLTS to find a qualified driver at the current salary rate without specific language requirement. The participants think the Spanish telephone service should be made also available in the morning because COLTS should expect a larger percentage of non-English-speaking clients. However COLTS cannot afford having the Spanish-speaking dispatcher work more than 30 hours a week. The only solution in Spanish-English translation when the Spanish-speaking dispatcher is out of the office is to get assistance from other departments, which is sufficient to handle the current demands.

Public Awareness

It is recognized by both the Latino immigrants interviewed and COLTS leadership that more marketing efforts are needed to increase awareness of COLTS transportation among Latino immigrants. The interview participants suggested that COLTS should distribute “Call Zaida” flyers to more Hispanic people and should bring the flyers to ESL classes, to CCCC and to Hispanic stores, should promote its service in Spanish newspaper and on Spanish radio program, and should have its staff go to big church or Hispanic festival events to introduce COLTS to Hispanic people. While COLTS did take some of the actions suggested, such as bring the “Call Zaida” flyers to two Hispanic stores, and sending the Spanish-speaking dispatcher to church and job fairs to promote COLTS transportation, COLTS leadership is facing the difficulty in finding the effective approach to reach the Latino community. As far as COLTS leadership knows, there is no Spanish newspapers, TV or radio program in Lee County.

Further Discussions

Comparing the participants’ perspective and COLTS’s perspective it’s not difficult to realize that meeting all of Latino immigrants’ unmet transportation needs is beyond COLTS’s current ability of providing transportation services. Concerns regarding “the desire for additional evening and/or weekend service, the need to reach out to the Latino community, and the limited funds available for service expansion” were raised during the planning process for the Community Transportation Service Plan (CTSP) in 2011 and are still there. The CTSP report identifies no funding opportunity for transportation for minority or immigrants. It is important for COLTS to utilize its limited resources efficiently to meet those transportation needs of Latino immigrants that can be met with COLTS’s current service modes and operating hours.

Dash Express resembles a fixed-route serve in the way that it has stop signs at the mobile home parks and scheduled pick-up times from the mobile home parks, and does not require reservation. However it doesn’t have certain drop-off locations on Horner Boulevard. The rider still has to tell the driver where he/she is going, and has to call COLTS office for the return trip, which diminishes the advantage in convenience of a fixed-route service, especially for people with limited English proficiency. The service also eliminates potential riders who only need a ride from Horner Boulevard to the mobile home park.

COLTS learnt from the failure in the previous Dash route that clients prefer door-to-door rides because they don’t want to walk to the bus stops. In fact, Latino immigrants may not be as reluctant to walking as the aged clients the terminated Dash route targeted. It may be more convenient for them if they can just walk to a bus stop and get on the bus with where they can get off in mind already. Latino immigrants also differ from other COLTS clients in the way that they are more desired of being able to manage their time. The demographic data of Lee County suggests that Latino population in Lee County is composed of many low-income workers. Those who work expect higher certainty using public transportation then carpooling in how much time they will spend on transportation and when they can reach their destinations.

Communication has been improved a lot with the Spanish-speaking dispatcher and “Call Zaida” propaganda. With the Spanish-speaking dispatcher and the assistance from Spanish-speaking staff in other departments when necessary, Spanish-speaking clients will be able to reserve rides

with COLTS and get information about COLTS transportation. However it takes extra steps when the Spanish-speaking dispatcher is not at the office. In such case the phone call will be transferred to Department of Social Services (DSS) and the Spanish-speaking staff there will take the message and will call COLTS office back to request whatever the client needs. It makes people who speak limited English worried about the potential frustration if efficient and smooth communication cannot be ensured in case of any emergency.

The challenges for COLTS in providing quality service needed by Latino immigrants are not unusual for community (rural) transit systems in North Carolina. Among the 21 CTSP reports approved by NCDOT between 2010 and 2013, ten transit systems, including COLTS, recognized the potential transportation needs of Latino communities. Also mentioned by these CTSP reports are the distrust issues (Hoke Area Transit, Hyde County Transit), the lack of service awareness among Latino immigrants (Joenston County Area Transit System, Hyde County Transit) and communication gaps (Chatham Transit, Hoke Area Transit). Recommended or planned actions targeting Latino population are mainly marketing efforts and building relationships by engaging Hispanic representatives in transportation-related planning activities. The general perception is that the potential Hispanic riders are harder to reach, as routine marketing tools might not work as well with these potential riders. Hyde County Transit (HCT) proposed several approaches to reach the potential Hispanic riders: contacting leaders in the Latino community to solicit their suggestions as to the best ways to reach their community, including information about HCT in utility bills in both English and Spanish and posting flyers at community gathering spots. South East Area Transit System (SEATS) conducted an interview with an advocate for the Latino community who owns a small business enterprise heavily used by Hispanics to gain insight on how SEATS service could benefit his business by providing transportation to potential clients and to learn if it's true that citizens obtain transportation through private providers.

The interviews with the Director of Lee County Senior Services and the city planners revealed additional planning-related issues in improving public transportation for the Latino community. The transportation planning activities by the City of Sanford are separate from the planning for County of Lee Transit System while the newly-formed Lee County Transportation Committee is expected to bring more collaboration between the City and the County for the transportation comprehensive plan. There used to be a non-profit organization called Hispanic Task Force, which could have provided potential funding opportunities for COLTS but didn't pass the audit due to disordered documentation. The current Latino migration project led by the UNC BIC team is a 3-year project and officially concluded in March, 2017. Despite the high presentation of Latino population in Lee County there is no Hispanic member on any of the City's boards as far as the City planner knows, and both the City and the County are now expecting that the Hispanic Council, as a result of the BIC team's effort, will make a difference.

7. RECOMMENDATIONS

The previous sections discussed the many challenges of COLTS as a rural transit system in meeting the transportation needs of the underserved Latino population. However there are still opportunities for COLTS to utilize its resources efficiently to provide transportation services that match the Latino community's needs, by understanding Latino community's expectation for public transportation and how they get around Lee County. Based on findings from the interviews, the service capacity of COLTS and the input from the local governments' perspective, the study gives the following recommendations for COLTS in how it can provide better transportation service to meet the transportation needs of Latino community with financial and operational feasibility.

Recommendation 1: Making the Dash Express Route a Real Fixed-Route Service

The recommendation suggests that COLTS establish stops at certain locations on Horner Boulevard. Dash Express targets a group with limited English proficiency, those more likely to take no conversation requirement as an advantage of a fixed-route transit service, while the current service mode of Dash Express diminishes such potential attractiveness to the targeted group of people. A fixed-route service would be more convenient for both the drivers and the passengers since the situation that the driver doesn't know where the passenger's destination is could be mostly avoided. Besides, having an established route would convey the information more clearly to the drivers running Dash Express route that Dash Express is not on-demand, and there's stricter on-time requirement for it. The scheduler of COLTS should make sure that COLTS driver will be able to arrive at the stops on time when generating the daily manifest.

The door-to-door survey being conducted by the UNC BIC team will provide useful information in selection of stop locations. COLTS should also contact Latino community leaders to find out what are the places heavily visited by Hispanics. A preliminary list of potential stops includes: Walmart, La Cumplidora, Food Lion, Banks and Laundromat.

COLTS stop signs should be installed at all selected stop locations, which will help to increase people's awareness of the public transportation. Currently the COLTS stop signs at mobile home parks don't contain any schedule information. Nor do they give any explanation on how Dash Express works. To make it easier for potential passengers to use Dash Express COLTS should put clear instructions in simple English and Spanish, as well as the pick-up times, together with the COLTS stop signs. And, if possible, note that using COLTS services doesn't require any ID.

It is also recommended that COLTS contact the major factory employers on Horner Boulevard to assess the feasibility of setting up pick-up times and stops in accordance to the work shift hours.

Recommendation 2: Enhancing Spanish Telephone Service

The immigrants interviewed thought the "Call Zaida" program is very helpful. Many said they would actually call the number and talk to Zaida for more information. However it is notices that customers who dial COLTS office will hear an automatic voice that guides the customers to select if they want to speak to the Medicaid transportation coordinator, the dispatcher or the

scheduler. The automatic voice is in English, which could possibly make Spanish-speaking customers who look for the Spanish-speaking dispatcher feel nervous. To make Spanish-speaking customers feel that they are valuable customers to COLTS, it is recommended that COLTS add Spanish telephone voice and allow the customers to select language when they call the COLTS office. When the Spanish-speaking dispatcher is not working, the telephone system should redirect the Spanish-speaking customer to DSS front desk automatically, which will save the time of making phone calls with DSS front desk back and forth.

Recommendation 3: Making Complete and Accurate Information about COLTS Available Publicly in Spanish

While the County's Website does have a tab for Spanish, there is actually no Spanish webpage for COLTS transportation. Even the COLTS webpage in English contains lots of out-of-date information, such as the operating hours. COLTS should update its website in English and create a Spanish version with the updated information.

Although COLTS recently started its Facebook and Twitter accounts for in-time updates of COLTS news and events, people are more likely to use Facebook or Twitter to keep in touch with friends and family members instead of following the account of a transportation agency. COLTS should consult Hispanic representatives to find out if Hispanics are getting information in Spanish from any media and make information about COLTS available on these media.

Current flyers and brochures should be reviewed to ensure that information provided is not only accurate and clear but easy to understand, with all essential elements emphasized, such as that COLTS is available to the general public for a variety of trip purposes and it doesn't require any ID to use the service.

Some interview participants did see COLTS vans running around, but didn't know that they provide transportation services to the general public. The word 'Public Transportation' printed on COLTS vans with the COLTS logo is in English. It is recommended that COLTS print some texts conveying the information that it serves everyone in Lee County on its vehicles in Spanish as well, so that Spanish-speaking people will get such information when seeing a COLTS van.

Recommendation 4: Working with Moncure Community Health Center to Reach Potential Latino Riders

Although the accurate number is not available, there are certainly a tremendous amount of Hispanics going to Moncure regularly. Many of them hope to get rid of the stress and fear associated with driving for a long distance with alternative transportation. If COLTS can send a full or almost fully-occupied vehicle to Moncure, it will be possible for COLTS to reduce the fee for each passenger while still making a profit.

COLTS should reach out to staff at Moncure Clinic for three purposes: to discuss the possibility of putting COLTS flyers and brochures at the Clinic, to check if the Hispanics going to Moncure are qualified to receive transportation service through the Medicaid program and to seek contracting opportunities.

Recommendation 5: Identifying Effective Approaches to Reach the Latino Population

COLTS should continue the current marketing effort targeting Latino population that has been made, such as going to church events to promote COLTS and bring Spanish flyers to Hispanic stores, while at the same time, also contact Latino community leaders for suggestions and collaborate with the Hispanic Council to identify effective approaches to reach the potential Hispanic riders. COLTS should consider creative approaches to expand its perception, such as including information about COLTS in utility bills in both English and Spanish, having COLTS staff going to factories and ESL classes provided by El Refugio and CCCC, and making COLTS tickets available at popular Hispanic stores.

Recommendation 6: Coordinating with Latino Community Leaders, Factories and Owners of Hispanic Stores for Innovative Transportation Solutions

COLTS is watching its budget carefully, however there remains some flexibility as long as the revenue generated from one trip is able to cover the cost with an acceptable system efficiency. Based on what the immigrants said in the interviews, sometimes when a person provides rides to several co-workers they would actually establish somewhat a ‘route’ to pick up everyone without veering too much. Also factories have certain shift hours based on which COLTS may schedule certain pick-up times. Factories, and the workers that are providing rides to others, can provide valuable information regarding how COLTS can schedule transportation services to those factory workers with high system efficiency.

Another potential partnership opportunity is with the Hispanic stores on Horner Boulevard, which are one of the common destinations for Hispanics to do grocery shopping. It is suggested that COLTS provide the option for a group of people to ride with COLTS at a lower price per capita.

Recommendation 7: Collaborating with the UNC BIC Team for Long-term Evaluation

Although the 3-year BIC project already ended, the BIC team is very interested in the long-term impact of the action plan they created for Latino community in Lee County, including an evaluation of the effect of marketing effort made by COLTS and the impact of Dash Express. The evaluation will provide COLTS with information regarding how effective its effort of reaching and serving the Latino community is. Also, while the BIC team are conducting their study in Latino community, they always introduce COLTS transportation to people and thus help to increase the public awareness of COLTS among Latino population.

8. CONCLUSION

Based on 14 semi-structured interviews with Latino immigrants in Lee County, the study found that Latino immigrants in Lee County are in need of more reliable and convenient transportation options at a more affordable price. Most of the trips made by Latino immigrants are either mandatory, like work trips, or for maintenance purpose, like grocery shopping. These trips are essential to sustain a high quality of life. Challenges encountered by Latino immigrants in Lee County include difficulties in getting rides from others on a daily basis, lack of transportation option in emergency, and stress or fears associated with driving, especially driving out of the County.

The potential Latino immigrant clients of COLTS transportation tend to have busier schedules than those of the other clients COLTS serves through contracts with human service agencies. They expect higher reliability as well as flexibility for transportation in order to conduct the activities or get the services, whether planned or unexpected, within the time range that they could make proper arrangement for other tasks. They prefer fixed-route transit service because they find it more convenient to not plan for trips way ahead of time while knowing where and when they can get on the bus.

Lack of complete information, price and mismatch in service modes or times prevent Latino immigrants in need of alternative transportation from using the transportation services provided by the local transit system. The study recommends the following options for COLTS transportation to better meet the unmet needs of Latino population in Lee County.

- Making the Dash Express Route a Real Fixed-Route Service;
- Enhancing Spanish Telephone Service;
- Making Complete and Accurate Information about COLTS Available Publicly in Spanish;
- Working with Moncure Community Health Center to Reach Potential Latino Riders;
- Identifying Effective Approaches to Reach the Latino Population;
- Coordinating with Latino Community Leaders, Factories and Owners of Hispanic Stores for Innovative Transportation Solutions;
- Collaborating with the UNC BIC Team for Long-term Evaluation.

Although many challenges faced by the County of Lee Transit System, COLTS, are from the rural content of Lee County and the funding structure for rural transit systems, there are tools that the practicing planners could use to maximize the economic and social benefits of the transit services. Thus, the above recommendations aim to assist the practicing planners to capture the transportation demand of an underserved population that can be met with the transit system's current capacity.

REFERENCES

- Akresh, I. R. 2006. Contexts of English language use among first generation immigrants. *International Migration Review* 41: 930–955.
- Atkins. 2013. Hyde County Transit Community Transportation Service Plan. (North Carolina Department of Transportation, Raleigh, NC)
- Beimborn, E.; Horowitz, A., Schuetz J.; Zejun, G. 1993. Measurement of Transit Benefits. (Federal Transit Administration, US Department of Transportation, Washington, DC)
- Burkhardt, J. E.; Hedrick, J. L.; McGavock, A. T. 1998. Assessment of the Economic Impacts of Rural Public Transportation Transit Cooperative Research Program Report 34, Transportation Research Board (National Academy Press, Washington, DC)
- Blumenberg, E. 2000. Planning for the transportation needs of welfare recipients: Institutional challenges to collaborative planning. (Association of Collegiate Schools of Planning, Atlanta, GA)
- Blumenberg, E.; Smart, M. 2010. Getting by with a little help from my friends and family: immigrants and carpooling. *Transportation* 37: 429–446
- Blumenberg, E.; Smart, M. 2013. Brother can you spare a ride? Carpooling in Immigrant Neighborhoods. *Urban Studies* 51(9): 1871–1890
- Casas, J.; Arce, C.; Frye, C. 2004. Latino immigration and its impact on future travel behavior. National Household Travel Survey Conference. Understanding Our Nation's Travel. Transportation Research Board, Washington, DC.
- Chatman, D.G.; Klein, N. 2009. Immigrants and travel demand in the United States: implications for transportation policy and future research. *Public Works Manage. Policy* 13(4): 312–327
- Clifton, K. J. 2004. Mobility Strategies and Food Shopping for Low-Income Families. *Journal of Planning Education and Research* 23:402-413
- Douma, F. 2004. Using ITS to Better Serve Diverse Populations Final Report. State and Local Policy Program, Hubert H. Humphrey Institute of Public Affairs, University of Minnesota.
- Godavarthy, R.; Mattson, J.; Ndembe, E. 2014. Cost-Benefit Analysis of Rural and Small Urban Transit. (National Center for Transit Research, Tampa, FL)
- Kidder, B. 2006. The Challenges of Rural Transportation. (Western Rural Development Center, Logan UT)
- Kimley-Horn and Associates, Inc. 2011. Lee County Community Transportation Service Plan. (North Carolina Department of Transportation, Raleigh, NC)
- Lewis, D.; Williams, F. L. 1999. Policy and Planning as Public Choice: Mass Transit in the United States. (Ashgate, Brookfield, VT)
- Litman, T. 2011. "Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications", Second Edition. Victoria Transport Policy Institute.
- Litman, T. 2012. "Evaluating Public Transit Benefits and Costs: Best Practices Guidebook." Victoria Transport Policy Institute.
- Liu, C. Y.; Painter, G. 2012. Travel Behavior among Latino Immigrants: The Role of Ethnic Concentration and Ethnic Employment *Journal of Planning Education and Research* 32(1): 62-80
- Liu, R.; Schachter, H. R. 2007. Mobility Information Needs of Immigrants with Limited English Proficiency (LEP) in New Jersey. *Journal of Immigrant and Refugee Studies* 5(2): 89-107
- Lovejoy, K.; Handy, S. 2011. Social networks as a source of private-vehicle transportation: The practice of getting rides and borrowing vehicles among Mexican immigrants in California. *Transportation Research Part A* 45: 248–257
- Lowe, K.; Mosby, K. 2016. The conceptual mismatch: A qualitative analysis of transportation costs and stressors for low-income adults. *Transport Policy* 49: 1–8
- Meyer, M.; Nelson, A. C.; Peng, Z-R. 1999. Development of a methodology to evaluate the economic impacts of rural public transportation on Georgia counties. (FHWA-GA-99-930-9, Georgia Department of Transportation, Atlanta, GA)

- Myers, D. 1996. Changes over time in transportation mode for journey to work: effects of aging and immigration. Decennial Census Data for Transportation Planning: Case Studies and Strategies for 2000. Transportation Research Board, Washington, DC.
- NCDHHS. 2012. Non-Emergency Medical Transportation Services Management Report S.L. 2012-142, Section 10.7. (North Carolina Department of Health and Human Services Division of Medical Assistance, Raleigh, NC)
- NCPTA. 2015. An Overview of North Carolina's Community Transportation System: An Examination of the Effectiveness of the Organizational Model in Today's NEMT Brokerage Environment. (North Carolina Public Transit Association, Raleigh, NC)
- Nightingale, D. 1997. Transportation Issues in Welfare Reform: Background Information. (The Urban Institute, Washington, DC.)
- Peng, Nelson, A. C., 1998. Rural Transit Services: A Local Economic and Fiscal Impact Analysis. *Transportation Research Record* number 1623, 57-62
- Qian, Z.; Lichter, D. T. 2007. Social Boundaries and Marital Assimilation: Interpreting Trends in Racial and Ethnic Intermarriage. *American Sociological Review* 72(1): 68-94.
- Rosenbloom, S.; Fielding, G. J. 1998. TCRP Report 28: Transit Markets of the Future: The Challenge of Change, Transit Cooperative Research Program. National Research Council, Washington, DC.
- Sarason, S. B., and E. M. Lorentz. 1998. *Crossing Boundaries: Collaboration, Coordination, And The Redefinition Of Resources*. San Francisco: Jossey-Bass.
- Schlossberg, M. 2004. Coordination as a strategy for serving the transportation disadvantaged. *Public Works Management and Policy*, 9(2), 132-144.
- Skolnik, J.; Schreiner, R. 1998. Benefits of transit in small urban areas: a case study. *Transportation Research Record* number 1623, 47-56.
- Smart, M. J. 2015. A nationwide look at the immigrant neighborhood effect on travel mode choice. *Transportation* 42:189–209.
- Southworth, F.; Vogt, D.P.; Curlee, T. R. 2005. Rural Transit Systems Benefits in Tennessee: Methodology and an Empirical Study. *Environment and Planning A* 37, 861-875.
- Stommes, E. S.; Brown, D. M. 2002. Transportation in Rural America: Issues for the 21st Century. Rural America. Economic Research Service, U.S. Department of Agriculture, 16. (4).
- Stommes, E. S.; Brown, D. M. 2005. Opportunities and Challenges For Rural Transit: Lessons Learned From The Job Access And Reserve Commute Program. *Public Works Management and Policy*, 10(1), 23-39
- Tal, G.; Handy, S. 2010. Travel behavior of immigrants: An analysis of the 2001 National Household Transportation Survey. *Transport Policy* 17: 85–93
- Valenzuela Jr., A.; Schweitzer, L.; Robles, A. 2005. Camionetas: informal travel among immigrants. *Transportation Research A* 39 (10), 895–911.
- White, J.; Gill, H. 2015. Building Integrated Communities in Sanford and Lee County, North Carolina: Demographics and Perspectives of Immigrant Residents. (University of North Carolina at Chapel Hill, Chapel Hill, NC)